

A multi-dimensional approach for quantifying drought impacts on Oklahoma's rural communities, and implications for water management

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The proposed project develops an integrative approach for assessing the resiliency and adaptive capacity of rural communities whose economies rely on agriculture. Southwestern Oklahoma is currently experiencing what the National Oceanic and Atmospheric Administration calls an "exceptional drought." Drought is common to the region, but drought severity and duration have increased over the last two decades. This challenge makes it essential that community leaders, water managers, farmers and ranchers, and other stakeholders develop contingency plans for managing scarce water resources during critical drought periods. The economies of Tillman, Harmon, and Jackson Counties are particularly susceptible to drought due to their reliance on crop and livestock production, agricultural sales and services, and processing of agricultural commodities. We will engage community stakeholders to understand their perceptions of the strengths, weaknesses, opportunities, and threats facing their current water management policies, given Oklahoma's statutes on water rights and regulations governing the use of surface and groundwater. Local accounts will supplement historical records on crop and livestock production losses. A sociological study on Oklahomans' perceptions of drought and water use will provide wider context of public perceptions pertaining to water security. We will communicate our findings with stakeholders highlighting 1) economic sector vulnerabilities and resiliency to drought, 2) the role of local institutions that govern water use during drought, and 3) potential opportunities to enhance water security.